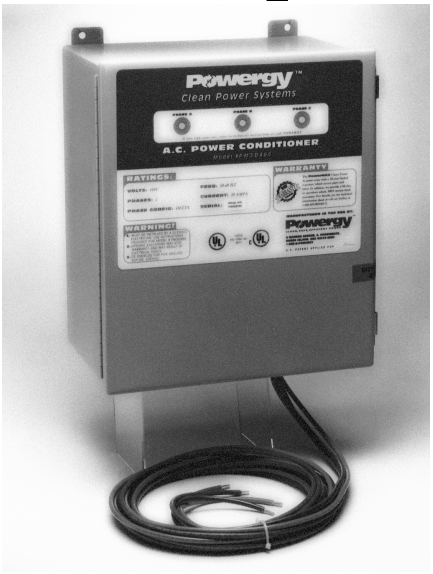
Technology Focus

An update on technologies for energy and resource management prepared by the New Technology Demonstration Program

Power Conditioner Also Provides Power Factor Correction

Motor Systems Resource Facility at Oregon State University issues test results on Powergy Clean Power Systems

The Powergy Clean Power Systems (CPS) unit manufactured by Powergy, Inc., of Providence, RI, is a power-conditioning device that provides power factor correction, noise filtration, and surge and spike protection to inductive AC power systems. The units are produced for applications ranging from 600-volt three-phase units to 120-volt single-phase residential units.



Powergy CPS Unit

The Technology

Powergy representative Pat Lapone explains how the technology works: "There are three major electrical efforts taking place inside the Powergy CPS unit. One is noise filtration and harmonics dampening through capacitors, inductors, and filter circuits. The second is surge protection via metal oxide varistors and capacitors, and last is power factor correction through the use of proven technologies integrated into a single device."

Powergy CPS provides both power conditioning and power factor correction. Power conditioning provides cleaner power, while power factor correction makes power utilization more effective. As a power conditioning device, the CPS is designed to eliminate unwanted bumps and spikes and protect against voltage "transients," generally smoothing out the power, while also adjusting the phase of power to help inductive load machinery run more efficiently.

Performance Test Results

The Powergy CPS unit was tested on a 100-hp motor by the Motor Systems Resource Facility, a designated ERPI/Bonneville Power Administration Center at Oregon State University. Power system measurements were obtained from lab tests for a range of typical load conditions, with and without the CPS in operation. Dr. Alan K. Wallace, OSU, led the testing effort.

The tests performed by the Motor Systems Resource Facility on the Powergy PCS applied to a 100-horsepower motor provided the following results:

- power factor was improved from 88% to 96% at full load and from 62% to 97% at 25% partial load
- electric currents were reduced from 115.2 amps to 105.0 amps at full load and from 41.5 amps to 26.6 amps at 25% partial load

- power supplied (kW) was reduced from 80.77 kW to 80.54 kW at full load and was increased from 20.57 kW to 20.62 kW at 25% partial load.

According to the Motor Systems Resource Facility test, correct use of the Powergy CPS units should yield the following benefits to industrial power users and utilities:

- reduction of power factor penalties in the utility bill
- improved power distribution equipment life
- improved voltage stability to other equipment
- improved electrical capacity of the facility.

For more information

For more information about Powergy Clean Power Systems products, contact

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